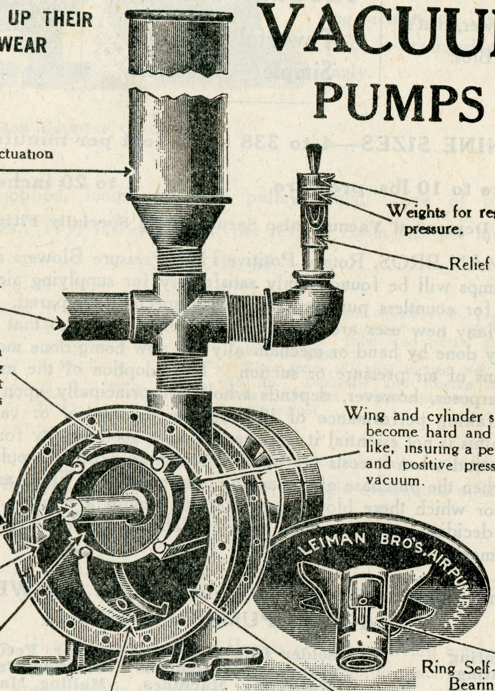
LEIMAN BROS.

AND ROTARY POSITIVE

SAND BLASTS BLOWERS AND VACUUM PUMPS

THEY TAKE UP THEIR OWN WEAR



Tank prevents fluctuation of air

Weights for regulating pressure.

Relief Valve.

OUTLET threaded for standard Iron pipe.

Enclosed stud in piston holds wing close to cylinder at top, preventing loss of air pressure.

Wing and cylinder surfaces become hard and glassy-like, insuring a perfect fit and positive pressure or vacuum.

INLET threaded for standard iron pipe.

SHAFT

No composition tips to require renewal frequently

PISTON

Wing kept in constant contact with cylinder by centrifugal force

Ring Self-Oiling Bearings.

PATENTED

Big air space resulting from small piston and curved wings.

ROTATION COUNTER CLOCKWISE

LEIMAN BROS.

81 WALKER STREET
Near Broadway & Canal St. NEW YORK

OVER 30 YEARS IN BUSINESS

A blower that's noisy is an abomination. Get one that wont annoy you. A noiseless blower is an efficient blower, that's Leiman Bros.

LEIMAN BROS.
ROTARY POSITIVE HIGH PRESSURE
BLOWERS
AND
Vacuum Pumps

Powerful — Durable
Simple — Noiseless

Every shop or factory as well as laboratory wants a Blower or Vacuum Pump—One pump may be used for both purposes—What one do you need?

NINE SIZES—4 to 338 cubic feet per minute.

1 ounce to 10 lbs. pressure **1 to 20 inches vacuum**

Higher Degrees of Vacuum also Secured with Specially Fitted Machines

LEIMAN BROS. Rotary Positive High Pressure Blowers and Vacuum Pumps will be found highly satisfactory for supplying air pressure or suction for countless purposes and, when specially prepared, for pumping gas. Many new uses are suggesting themselves daily, so that many things formerly done by hand or mechanically are now being done more efficiently by means of air pressure or suction. The adoption of the use of air for most purposes, however, depends wholly or principally upon the positive and unfailing performance of its work by the blower or vacuum pump. Where this is not essential it is, nevertheless, a good quality for a blower to possess, and when it costs the purchaser nothing extra it should be insisted upon when the purchase of a machine is in question. There are many purposes for which these blowers and vacuum pumps are nicely adapted and before deciding any proposition their availability should be investigated. It means money and time saved.

Some purposes for which Leiman Bros. BLOWERS and VACUUM PUMPS may be used

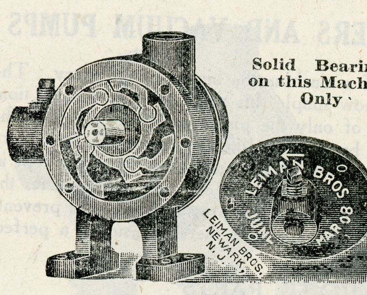
- **Agitating**
- **Aerating**
- **Singeing**
- **Branding**
- **Preheating**
- **Assaying**
- **Brazing**
- **Annealing**
- **Soldering**
- **Forging**
- **Hardening**
- **Oil Furnaces**
- **Gas Furnaces**
- **Coal Furnaces**
- **Suction Chuck**
- **Burning Stumps**
- **Burning Rubbish**
- **Solder Iron Heaters**
- **Wrapping Machines**
- **Massaging Machines**
- **Laboratory Work**
- **Blow Lamps**
- **Blow Pipes**
- **Glass Blowing**
- **Gas Pumping**
- **Testing Meters**
- **Pressing Irons**
- **Cash Carrier Systems**
- **Church Chimes**
- **Calliopes**
- **Player Pianos**
- **Milking Machines**
- **Drying Grain**
- **Fruit Evaporation**
- **Paper Feeding Devices**
- **Printing Presses**
- **Mailing Machines**
- **Box Nailing Machines**
- **Testing Gas Fittings**
- **Removing Foul Air**
- **Supplying Fresh Air**
- **Melting**
- **Tempering**
- **Wireless Telegraph**
- **Blowing Dirt from Machines**
- **Glass Bending**
- **Atomizing**
- **Spraying**
- **Blowing Chips from Machines**

AND MANY KINDS OF AUTOMATIC MACHINES AND DEVICES

SIZE AA

SPECIAL

Solid Bearings on this Machine Only



Rotation Counter Clockwise

We are furnishing this model with 2 flat wings at the present time on account of manufacturing conditions, and the price is arranged accordingly.

Equipment supplied, loose and tight pulleys only. Size of pulleys, 2¼x¾ inches. 1½ inches free air per rev. 4 cubic feet per minute.

—600 R. P. M.—

1/12 H. P.	up to	1	lb.	mercury	pressure
1/10	“	2	“	“	“
1/8	“	3	“	“	“
1/6	“	5	“	“	“
1/4	“	8	“	“	“
1/3	“	10	“	“	“

2 inches vacuum equals 1 lb. pressure.)

Above 4 lb. pressure for intermittent service only. Inlet and outlet threaded for ⅜ in. pipe.

Floor space, 3¼x6¼ inches. Net weight, 10 lbs. Domestic and foreign shipping weight, 13 lbs. Cubic shipping measure, 1 cubic foot.

For pressure use sight feed oil cup at inlet to lubricate cylinder; for vacuum up to 8 inches use sight feed oil cup or single continuous oiling system—above 8 inches use double oil feeding system.

Leiman Bros. Blowers and Vacuum Pumps are labor-saving machines—they do all manner of work in connection with automatic machines. This is because they are automatic themselves in the sense that they take up their own wear—they're always fit—always doing the work they're paid to do. No workman works like they do, and at many of their tasks they do work which formerly required many human hands. We are ready to help you in fitting the machines to your device, too.

The blower wings slide in and out of their hinge grooves when it is required to remove them. They move freely around the cylinder when at work—helped along by the absence of friction—easy operation means little power used.

——SIMPLE CONSTRUCTION OF——

LEIMAN BROS. BLOWERS AND VACUUM PUMPS

The simpler the construction of a machine the higher its efficiency. The interior view shows at a glance how simple this machine is in construction. The entire working parts consist of only the piston and four wings. The wings are attached to the piston by a hinge-like device producing a very easy action, and by the rotating motion of the machinery they are kept in constant contact with the inner cylinder wall. Each wing as it reaches the top is kept close to the inner cylinder wall by a pressure stud, thus preventing the air from passing back into the machine, thereby insuring a perfect compression at all times.

NO DELICATE PARTS

There are no delicate parts on these machines to get out of order. All parts are massive in construction and built to stand wear and strain. The operation of the machine depends upon natural forces without the aid of springs, tips on the wings made of foreign material to require constant renewal, etc., while all parts are interchangeable.

EFFICIENCY AND CAPACITY

Probably the most important consideration in selecting a Blower or Vacuum Pump is the question as to how long it will last, or its ability to maintain its rated efficiency after long continued use.

The interior construction of LEIMAN BROS. BLOWERS and VACUUM PUMPS is so arranged that the wings take up their own wear. They are always in perfect contact with the cylinder, however old the machine may be. This results in the highest efficiency, and they are the only blowers that will maintain this efficiency even after long continued use. The curved form of the wing, together with the small size of the piston makes the air chamber much larger, and makes the capacity greater than any other machine of the same size now on the market.

Many concerns are still using the old style blowers, which are not alone cumbersome and noisy, but the high speed necessary to get results requires considerable power, they are also a constant source of annoyance and expense. In many cases our small blowers will do all this work most efficiently and the money thus expended is soon made up in the great saving of power, time and trouble.

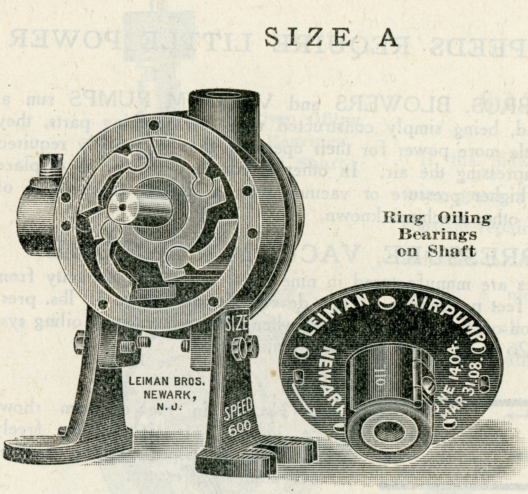
LOW PRICE OF THE BLOWERS AND VACUUM PUMPS

LEIMAN BROS. BLOWERS and VACUUM PUMPS, while unequalled for efficiency, are lower in price than most of the so-called Positive Blowers and Vacuum Pumps now on the market and when considering the important item of repairs these machines are also far cheaper in the long run than any others.

LOW COST OF MAINTENANCE

With few working parts and these of strong construction with an absence of springs and delicate parts to break or get out of order and without any tips of foreign material on the wings to require frequent renewal the cost of maintenance is greatly reduced.

SIZE A



Rotation Counter Clockwise

The blowers in their various sizes may be used with all makes of gas and oil burning furnaces or blowpipes, sand blast machines or for agitating liquids of all kinds.

Equipment supplied, loose and tight pulleys only. Size of pulleys, 3x1 inches. 17 cubic inches free air per rev. 6 cubic feet per minute.

——600 R. P. M.——

1/10 H. P.	up to	1 lb.	mercury	pressure
1/8	"	2 "	"	"
1/6 "	"	3 "	"	"
1/4 "	"	5 "	"	"
1/3 "	"	8 "	"	"
1/2 "	"	10 "	"	"

(2 inches vacuum equals 1 lb. pressure.) Above 4 lb. pressure for intermittent service only. Inlet and outlet threaded for ½ inch pipe. Floor space, 6x11 inches. Net weight, 18 lbs. Domestic and foreign shipping weight, 23 lbs. Cubic shipping measure, 1 cubic foot.

For pressure use sight feed oil cup at inlet to lubricate cylinder; for vacuum up to 8 inches use sight feed oil cup or single continuous oiling system—above 8 inches use double oil feeding system.

Never let a workman do something that a machine can do as well—and a machine can generally improve on human handiwork. These Blowers and Vacuum Pumps will work all day and then all night without overtime pay—and be ready the next morning for more work—perhaps some of the work in your own factory can be done with labor-saving machinery. It's worth investigating. We furnish these pumps to many manufacturers who incorporate them in labor-saving automatic machines.

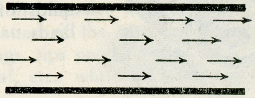
Most blowers will lose compression the harder they are worked. With ours, as the wings scoop up the air, the latter cannot but be forced out of the outlet where it is needed. This makes for the highest blower efficiency.

SLOW SPEEDS REQUIRE LITTLE POWER

LEIMAN BROS. BLOWERS and VACUUM PUMPS run at slow speeds and, being simply constructed with few working parts, they require very little more power for their operation than is actually required for simply compressing the air. In other words they deliver or displace more air at a higher pressure or vacuum with a smaller expenditure of power than any other machines known.

AIR PRESSURE, VACUUM & VOLUME

The machines are manufactured in nine sizes, ranging in capacity from 4 to 338 cubic feet per minute. They develop from 1 oz. to 10 lbs. pressure, or a suction of 1 to 20 inches, and when using our vacuum oiling system as high as 26 to 28 inches may be maintained.

1


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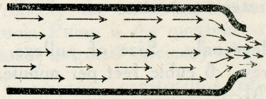

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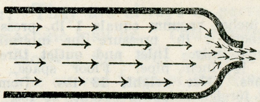


Using the Outlet for Pressure

No. 1 in the diagram shows a volume of air passing freely through a pipe creating neither vacuum or pressure.

No. 2 shows the same volume of air being forced through a reduced opening, thus creating pressure; if drawn through a reduced inlet then a vacuum would be created.

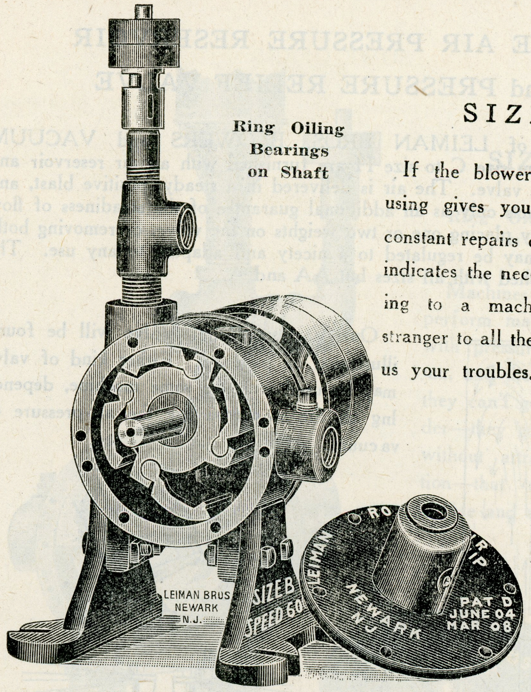
No. 3 shows the opening still further reduced, thus further increasing the pressure, or if drawn through a reduced inlet then the vacuum is increased.

From the above it is seen that the smaller the opening, the higher the pressure or suction will be. For steady operation, however, it is best not to drive the machine at its maximum capacity, and therefore a pressure of about 4 lbs. or suction of about 8 inches should not be exceeded except in special cases requiring short runs. The machines require little more power than would actually be required to simply compress the air, thus showing that the friction is very slight indeed.

We have been making these blowers for a good many years and yet we have no repair department—the machines look out for themselves. They're automatic and they need very little, if any, attention. That's why they are set at tasks requiring human intelligence ordinarily—in connection with wonderful machinery of different kinds, printing presses, liquid measuring and bottle filling devices, gathering and ruling machines whether using air at pressure or a vacuum. We are ready to help you adapt them to your own problems.

SIZE B

If the blower you are now using gives you trouble, needs constant repairs or is noisy—this indicates the necessity of changing to a machine that is a stranger to all these things. Tell us your troubles.



Ring Oiling Bearings on Shaft

Rotation Counter Clockwise

Equipment supplied, loose and tight pulleys, relief valve and fittings. (It is not necessary or desirable to use the relief valve and fittings shown above when the machine is required for vacuum work. Always specify if these are not wanted and a suitable allowance will be made for them.)

Size of pulleys 4x1½ inches. 30 cu. ins. free air per rev.
10½ cu. ft. per minute. 600 R. P. M.

1/4 H. P. up to 3 lbs. mercury pressure
1/2 " " 8 " " "
3/4 " " 10 " " "
(2 inches vacuum equals 1 lb. pressure.)

Above 4 lbs. pressure for intermittent service only. Inlet and outlet threaded for ¾ inch pipe.. Floor space 8x12 inches. Net weight, 29 lbs. Domestic and foreign shipping weight, 40 lb. Cubic shipping measure, 1 cubic foot.

For pressure use sight feed oil cup at inlet to lubricate cylinder. For vacuum up to 8 inches use sight feed oil cup or single continuous oiling system—above 8 inches use double continuous oil feeding system.

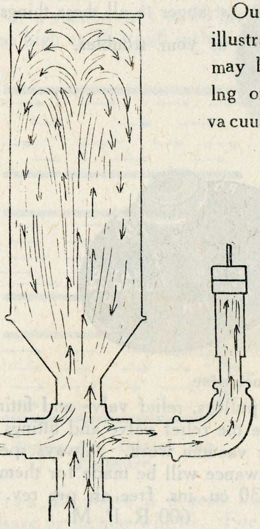
When comparing blowers of different makes you must consider continuous, uninterrupted service—idleness of a machine through breakdown or practical idleness through inefficient operation, is costly. Exhaustive tests have proved that Leiman Bros. Blowers and Vacuum Pumps are without a peer. You get dollar for dollar in service. The machines will do all you expect of them and more, too. If you have a problem don't hesitate to investigate.

A good blower can be recognized not only by the work that it does, but by the power used and the cost per cubic foot-pound pressure delivered.

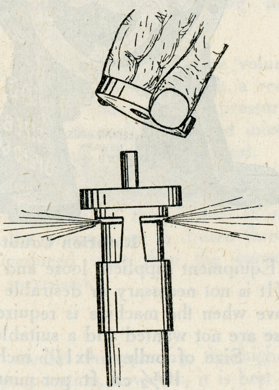
THE AIR PRESSURE RESERVOIR and PRESSURE RELIEF VALVE

All sizes of LEIMAN BROS. BLOWERS and VACUUM PUMPS, from size C to size H are furnished with an air reservoir and pressure relief valve. The air is delivered in a steady, positive blast, and the reservoir acts only as an additional guarantee of the steadiness of flow of the air. By placing one or two weights on the valve, or removing both, the pressure may be regulated to a nicety and adapted to any use. The valve is furnished with all sizes but AA and A.

Our Vacuum Relief Valve will be found illustrated on page 17. Either kind of valve may be used with the same machine, depending on the way you use the air-pressure or vacuum.



Action and Course of air when using Reservoir and Valve



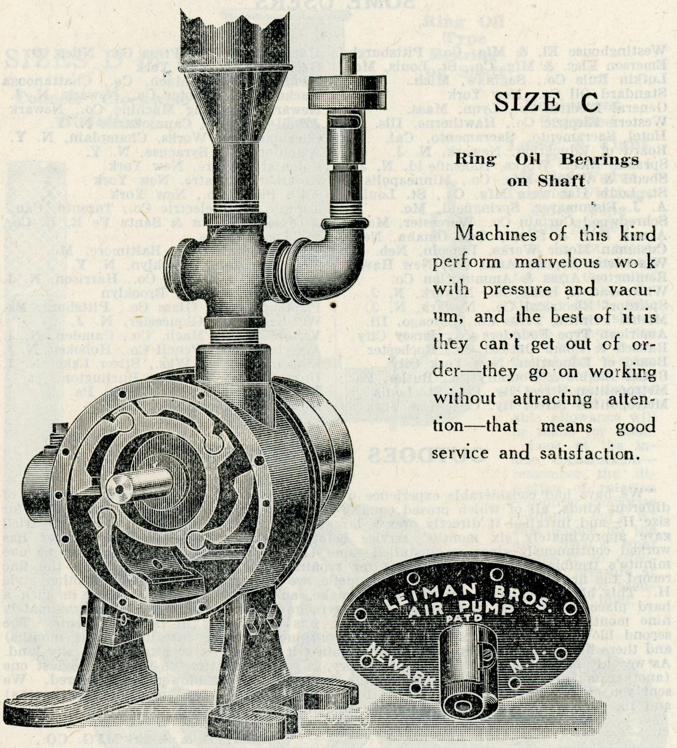
How the Pressure Valve is regulated by use of weights

(These are not needed when the machines are used for vacuum and we make a suitable allowance for them. Be sure to specify how you want to use the machine.)

SELECTING A MACHINE

In selecting a machine, the length of the pipe, number of turns, size, number and sizes of openings and degree of pressure or vacuum required all play important parts. If you are unable to select the proper machine, send the above particulars to us, naming the number and kind of appliances which are to be operated—giving the name of the manufacturer and any other data that may be found on the device itself.

SIZE C



Ring Oil Bearings on Shaft

Machines of this kind perform marvelous work with pressure and vacuum, and the best of it is they can't get out of order—they go on working without attracting attention—that means good service and satisfaction.

Rotation Counter Clockwise

Equipment supplied, loose and tight pulleys, relief valve, tank and fittings.

It is not necessary or desirable to use the relief valve, tank and fittings shown above when the machine is required for vacuum work. Always specify if these are not wanted and a suitable allowance will be made for them.

Size of Pulleys, 5x1 3/4 inches.

80 cu. ins. free air per rev. 18 1/2 cu. ft. per min. 400 R. P. M.

1/3 H. P.	up to 2 lbs.	mercury pressure
1/2 "	" 3 "	"
3/4 "	" 5 "	"
1 "	" 8 "	"
1 1/4 "	" 10 "	"

(2 inches vacuum equals 1 lb. pressure.) Above 4 lbs. pressure for intermittent service only. Inlet and outlet threaded for 1 inch pipe. Floor space 9x14 inches. Net weight, 48 lbs. Domestic shipping weight, 64 lbs. Foreign shipping weight, 86 lbs. Cubic shipping measure, 2 cubic feet.

For pressure use sight feed oil cup at inlet to lubricate cylinder. For vacuum up to 8 inches use sight feed oil cup or single continuous oil feeding system—above 8 inches use double continuous oil feeding system.

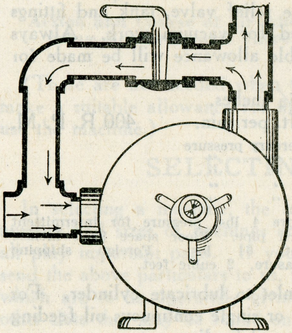
SOME USERS

Westinghouse El. & Mfg. Co., Pittsburgh
Emerson Elec. & Mfg. Co., St. Louis, Mo.
Lufkin Rule Co., Saginaw, Mich.
Standard Oil Co., New York
General Electric Co., Lynn, Mass.
Western Electric Co., Hawthorne, Ills.
Hotel Sacramento, Sacramento, Cal.
Board of Education, Newark, N. J.
Sprague Elect. Works, Bloomfield, N. J.
Shedd & Wright Mfg. Co., Minneapolis
St. Louis Hardware Mfg. Co., St. Louis
A. J. Eisenmayer, Springfield, Mo.
Schredwood Curtain Co., Worcester, Mass.
Alamo Eng. & Supply Co., Omaha, Neb.
Cushman Motor Works, Lincoln, Neb.
Winchester Repeat. Arms Co., New Haven
Remington Arms & Ammunition Co.
Whitehead & Hoag Co., Newark, N. J.
Splitdorf Electrical Co., Newark, N. J.
Miehle Printing Press Co., Chicago, Ill.
American Type Founders Co., Jersey City
Bausch & Lomb Optical Co., Rochester
Board of Education, New York City
Butler Engine & Foundry Co., Butler, Pa.
Metropolitan Street Ry. Co., St. Louis
Metropolitan Street Ry. Co., New York
Harris Automatic Press Co., Niles, O.
Grand Hotel, New York
Montague Mail. Mach. Co., Chattanooga
Backus Water Motor Co., Newark, N. J.
Newark Wrapping Machine Co., Newark
Arkell & Smith, Canajoharie, N. Y.
Sheridan Iron Works, Champlain, N. Y.
Amphion Co., Syracuse, N. Y.
Colonial Theatre, New York
Alhambra Theatre, New York
Auto Piano Co., New York
Toronto Hydroelectric Co., Toronto, Can.
Atchison, Topeka & Santa Fe R. R. Co.,
  Los Angeles
McDonough School, Baltimore, Md.
Pratt Institute, Brooklyn, N. Y.
Hyatt Roller Bearing Co., Harrison, N. J.
National Lead Co., Brooklyn
Pittsburg Plate Glass Co., Pittsburg, Pa.
Welsbach Co., Gloucester, N. J.
Victor Talking Mach. Co., Camden, N. J.
American Lead Pencil Co., Hoboken, N. J.
Edison Chemical Wks., Silver Lake, N. J.
University of Vermont, Burlington, Vt.
York Corrugating Co., York, Pa.
Elliot Co., Cambridge, Mass.

OUTDOES ALL OTHERS

"We have had considerable experience with blowers and have purchased a number of different kinds, all of which proved equally unsatisfactory. We sent you our order—for size H—and installed it directly over a large oil furnace. Every other blower we tried gave approximately six months' service before becoming useless. Your blower has worked continuously since we installed same (1½ years) and has never given us one minute's trouble or cost us one cent for repairs. Taking into consideration the fine record the first blower ordered from you made, we sent you our order for another style H. This blower replaced one of another make, and while it does not work in such a hard place as the first one, yet other blowers gave out after rendering approximately nine months' service, and during that time was continually in need of repair. The second blower, like the first, has worked continuously since installing (nine months) and there has been no charge marked up against it for repairs or attention of any kind. As we only have three blowers in our factory, it soon came time to replace the last one (another make), which was new when the first one of your blowers was ordered. We sent you our order for another style H blower. This blower was installed (six months) and like the others, has been absolutely free from expense."

SMITH & SONS MFG. CO.,
Kansas City, Mo.

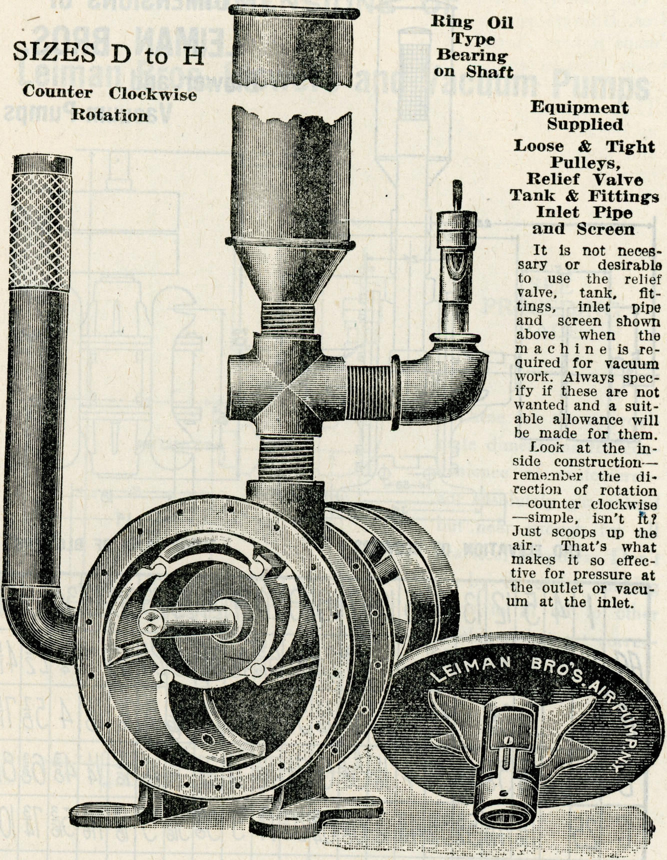


BY-PASS ARRANGEMENT

Which may be used with Leiman Bros. Blowers and by means of which any excess of air or gas may be passed back into the machine, thus regulating the supply to the actual requirements. We do not supply this, but it can be easily put together by any mechanic. It is hand operated.

SIZES D to H

Counter Clockwise Rotation


LEIMAN BRO'S AIR PUMP N.Y.

Ring Oil Type Bearing on Shaft

Equipment Supplied

Loose & Tight Pulleys, Relief Valve Tank & Fittings Inlet Pipe and Screen

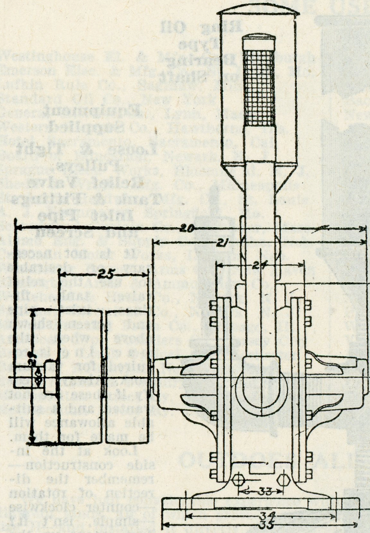
It is not necessary or desirable to use the relief valve, tank, fittings, inlet pipe and screen shown above when the machine is required for vacuum work. Always specify if these are not wanted and a suitable allowance will be made for them.

Look at the inside construction—remember the direction of rotation—counter clockwise—simple, isn't it? Just scoops up the air. That's what makes it so effective for pressure at the outlet or vacuum at the inlet.

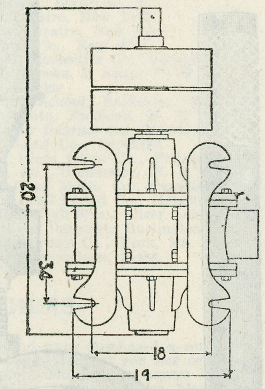
	D	E	F	G	H
Size of Pulley	7x2½	12x2½	12x3½	16x3½	20x5
Cu. ft. per Min. Free Air	200	400	675	1400	2592
Cu.ft. per Min. Free Air	35	58	78½	162	338
R. P. M.	300	250	200	200	200
H. P. to 1 lb. Mer. Pressure	½	1	1½	3	8
H. P. to 2 lbs.	¾	1¼	2	4	9
H. P. to 3 lbs.	1	1½	2¼	4¾	10
H. P. to 5 lbs.	1¼	2	3	6½	13¾
H. P. to 8 lbs.	2	3	5	9	19
H. P. to 10 lbs.	2½	4	6½	10½	24
(2 ins. vacuum equals 1 lb. pressure.)	Above 4 lbs. for intermittent service only.				
Inlet & Outlet Threaded, ins.	1¼	1½	2	2½	4
Floor Space, inches	10x17	13x25	15x29	19x34	19x49
Net Weight, lbs.	94	167	226	406	800
Domestic Shipping Weight, lbs.	130	184	243	442	950
Foreign Shipping Weight,, lbs.	158	229	290	512	1052
Cubic Shipping Measure, ft.	4	5¼	7½	14	35

For pressure use sight feed oil cup at inlet to lubricate cylinder. For vacuum up to 8 inches use sight feed oil cup or single continuous oiling system—above 8 inches use double oil feeding system.

DIMENSIONS OF
LEIMAN BROS.
Blower and Vacuum Pumps



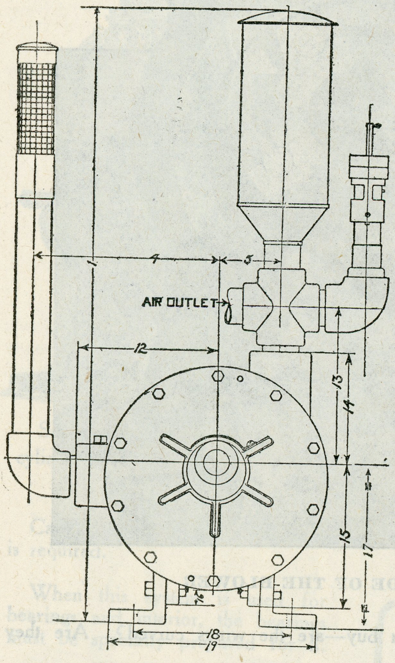
END ELEVATION OF BLOWERS



FLOOR PLAN OF BLOWERS

	1	4	5	12	13	14	15	16	17	18	19	20	21	24	25	29	30	33	34	35	37
AA			15/16	2 5/8		2 3/16			2 3/4	2 1/4	3 1/4	6 3/16	4 1/8	2 1/8	1 5/8	2 1/4	1/2		1 3/4	2 1/2	4 15/16
A			1 3/16	3 5/16		2 1/2	3 7/16	5/8	5 7/16	4 3/4	5 7/8	11	6 15/16	2 5/8	2 1/16	3	11/16	1 1/8	4	5 7/8	7 15/16
B			1 7/16	3 7/8	4 9/16	2 13/16	4	11/16	5 7/8	6	7 1/4	11 1/8	7 1/4	2 3/4	3 1/16	4	11/16	1 1/4	4 3/8	6 3/8	8 11/16
C	25		1 9/16	4 7/16	5 3/4	3 13/16	4 3/4	7/16	6 5/8	6 3/4	8 7/16	14	9	3 7/8	3 9/16	5	13/16	1 13/16	5 3/16	7 3/4	10 7/16
D	29	8 1/2	2 7/16	6 1/4	7 1/4	5	6 1/4	1/2	7 1/4	7 3/8	9 3/8	16 15/16	11 1/2	4 7/8	4 9/16	7	1	2 1/4	8	10 3/4	12 1/4
E	35	10	3	7 1/4	8 3/8	5 5/8	7 7/8	3/8	8 1/2	10 1/8	12 3/8	24 7/8	17 1/4	7	5 1/16	12	1 1/4	3 5/16	9 7/16	12 1/2	14 1/8
F	42	11 3/4	2 3/4	8 9/16	10 1/8	6 7/8	8 7/16		9 1/8	12 1/8	14 1/2	28 3/8	18 1/4	7	6 9/16	12	1 5/16	3 5/16	9 3/8	12 1/4	16
G	51	15 1/4	4 1/4	10 3/4	12 3/4	8 1/4	10 1/4		11	15 5/8	18 1/2	33 1/16	22 3/4	9	7 1/16	16	1 9/16	4 3/4	10 15/16	14 1/2	19 1/4
H	57	17 1/2	4	11 1/2	15 1/2	9 1/2	10		11	16 1/2	18 1/4	48 1/8	35 1/2	19 1/2	10 9/16	20	2	13 5/8	13 5/8	16 1/2	20 1/2

DIMENSIONS OF
Leiman Bros. Blowers and Vacuum Pumps



Side Elevation of Blowers

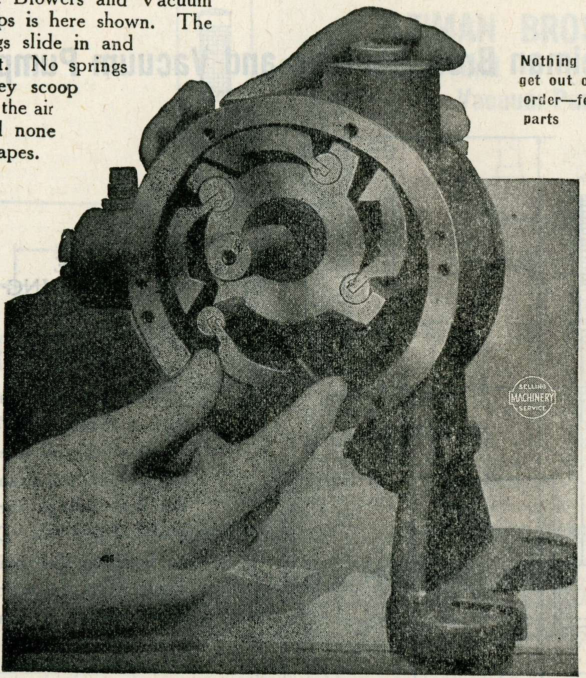
SEE PRECEDING PAGE

These are the approximate dimensions for convenience of customers—not absolutely guaranteed but near enough for all practical purposes. Don't go by them for making parts to fit on to other machines, but get corrections for exactness.

There are no delicate parts in these machines—nor fine adjustments to get out of order. Just great big, husky parts that are made to last—made to do a day's work without showing any ill effects. They take up their own, and so actually improve with use.

A good steady blast of air without puffing—a nice, steady vacuum that can be used with confidence in testing. An all around machine for pressure or vacuum. State your requirements in detail—we will advise what machine to use and how best to use it.

The Simplicity of Leiman Bros. Blowers and Vacuum Pumps is here shown. The wings slide in and out. No springs They scoop up the air and none escapes.



Nothing to get out of order—few parts

THE INSIDE OF THE BLOWER

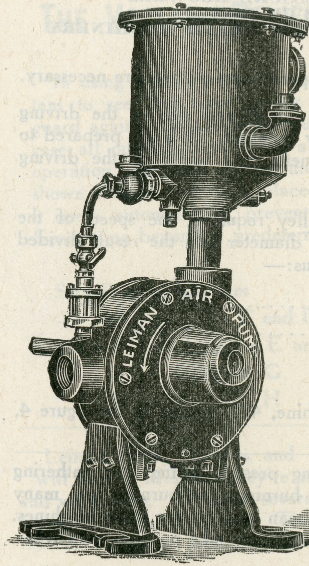
Look inside the blower you buy—are the wings curved? Are they solid—one piece wings?

The construction of these blowers is such that the air holds the wings against the cylinder while the machine is in motion—they scoop up the air—and if any of the air wants to get out, it must go out of the outlet—can't get out any other way—can't leak back behind the wings. The more it tries to the better the wings hold out against the cylinder—and that's how the machine takes up its own wear. It's always efficient—no matter how much of the wings should wear off, it must always touch the cylinder—makes a perfect glassy-like seat for itself—smooth as glass and therefore the friction is almost non-existent.

Specify by name only—say it out in full—LEIMAN BROS.

VACUUM OILING SYSTEM

The cylinder of the vacuum pump should be oiled by means of the oil hole at the inlet, but the use of a sight feed oil cup is recommended. The vacuum oiling system, however, is used where the machines are required to work steadily under a vacuum. This system keeps the cylinder well oiled by its continuous feed of oil which starts and stops automatically as the machine is used. This system is furnished for oiling the cylinder only or for oiling both the cylinder and bearings, in which case the latter are of the solid type sealed up to hold a high vacuum.

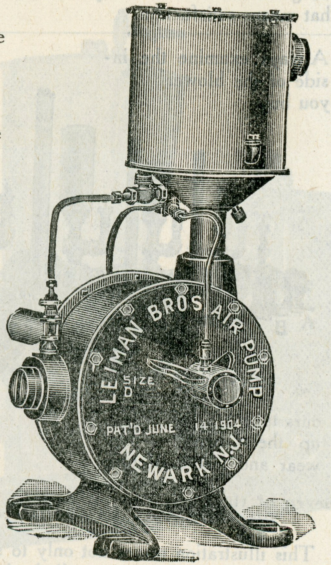


Single oiling system, lubricates the cylinder only.

Cannot be used when pressure is required.

When this system is used for bearings and interior, the bearings must be specially prepared for it.

A continuous supply of oil helps greatly to preserve any machine, and especially so in the case of a blower or vacuum pump. Keep your machine well oiled—it pays—and it's cheaper than repairs.



Double oiling system, lubricates the cylinder and shaft bearings.

PULLEYS

FOR PRESSURE BLOWERS
VACUUM PUMPS
and OTHER MACHINERY

Where direct motor drive is to be used, special size pulleys are necessary.

In selecting pulleys for a machine, the speed and size of the driving pulley will determine the size of the pulley required. We are prepared to furnish pulleys when the speed and diameter and width of the driving pulley is given.

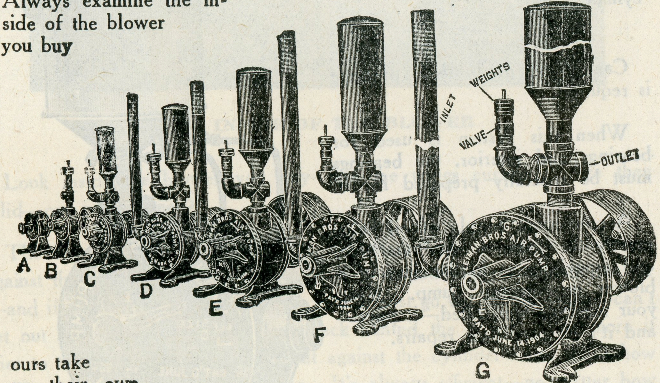
In the formula for finding size of pulley required, the speed of the driving pulley should be multiplied by its diameter and the result divided by the desired speed of the machine. Thus:—

Speed of driving pulley	400 R. P. M.
Diameter of driving pulley	4 inch
	1600

1600 divided by desired speed of machine, 400, results in the figure 4, the size in inches of the pulley required.

All sorts of automatic devices—printing presses, ruling and gathering machines, bottle and container fillers, oil burning, gas burning and many kinds of devices that need air or vacuum can and do use these machines. The great reason is that they are reliable and they take up their own wear. That means satisfaction.

Always examine the inside of the blower you buy

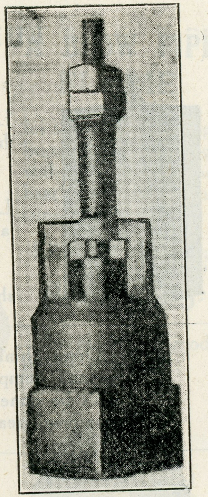


ours take up their own wear and last a lifetime.

Seven of the Nine Sizes of Leiman Bros. Blowers and Vacuum Pumps. Sizes AA and H are not shown above.

This illustration serves not only to show the range of sizes we make, but also shows the equipment supplied with each machine.

THE VACUUM RELIEF VALVE

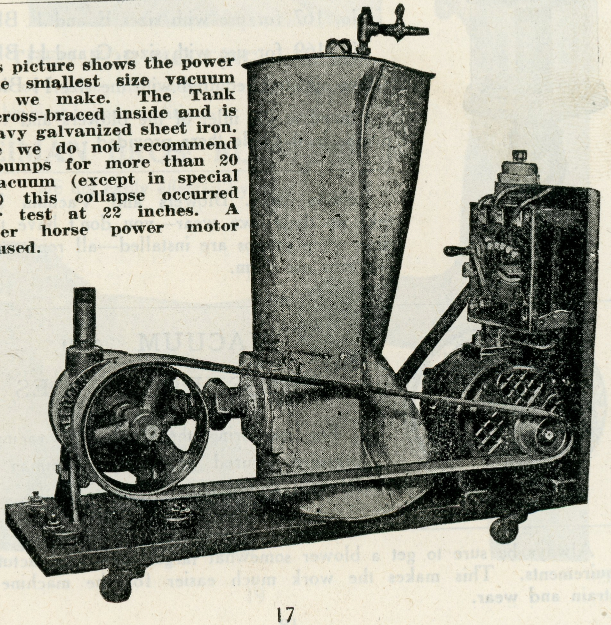


In using a machine for vacuum it is important to see that some means is provided to guard against damage to the pump or motor, in case all openings are closed at once while in operation. In such a case the vacuum valve shown is used and when placed on the piping it opens automatically, preventing the vacuum from rising beyond a predetermined degree.

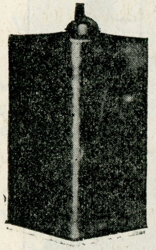
Size D used for sizes
AA - A - B - C and D Pumps
Size F used for sizes E and F Pumps
" G " size G "
" H " " H "

Leiman Bros. Blowers and Vacuum Pumps will last a lifetime—they're made to work—and work right. The most severe as well as the most delicate tasks are performed by these machines. They will do your work, too.

This picture shows the power of the smallest size vacuum pump we make. The Tank was cross-braced inside and is of heavy galvanized sheet iron. While we do not recommend the pumps for more than 20 in. vacuum (except in special cases) this collapse occurred under test at 22 inches. A quarter horse power motor was used.



LUBRICATING OILS

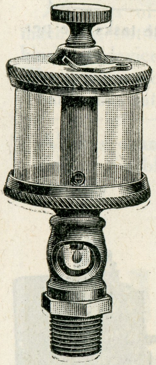


Blower Oil for lubricating the interior of Leiman Bros. Blowers and Vacuum Pumps, in half gallon cans.

Machinery Oil for lubricating bearings of Leiman Bros. Blowers and Vacuum Pumps and all kinds of Machinery, in half gallon cans.

Not responsible for leakage or damage in shipment.

Don't think because your present blower or vacuum pump won't do your work right that it can't be done right. Our machines are made to overcome great difficulties.



OIL CUPS
WITH SIGHT FEED GLASS

No. 165 for use with sizes AA to D Blowers.

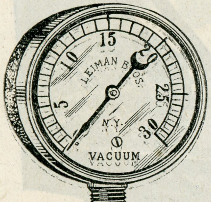
No. 167 for use with sizes E and F Blowers.

No. 169 for use with sizes G and H Blowers.

(Two oil cups required with the size H Blower.)

Placed at the inlet of the blowers and vacuum pumps in the hole there provided.

Leiman Bros. Blowers and Vacuum Pumps take up their own wear—you don't have to lose time when pumps are installed—all representative concerns use them.



VACUUM AND PRESSURE GAUGES

For measuring the degree of vacuum or pressure secured when using Leiman Bros Blowers and Vacuum Pumps.

Always be sure to get a blower somewhat larger than your actual requirements. This makes the work much easier for the machine—less strain and wear.

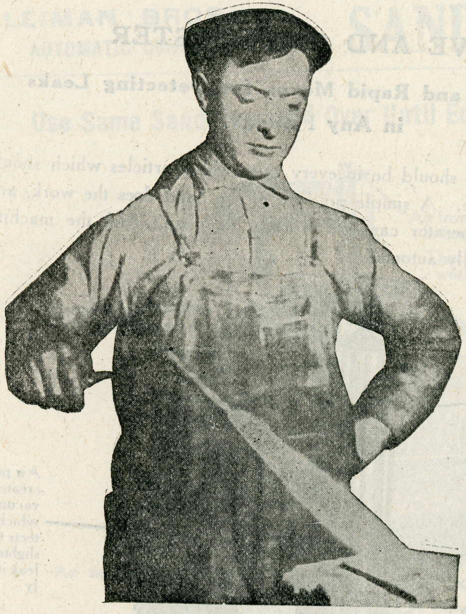
A BLOW PIPE FLAME

for soldering, annealing, brazing or oxidizing; with plenty of life and heat is readily maintained with

LEIMAN BROS.

BLOWERS

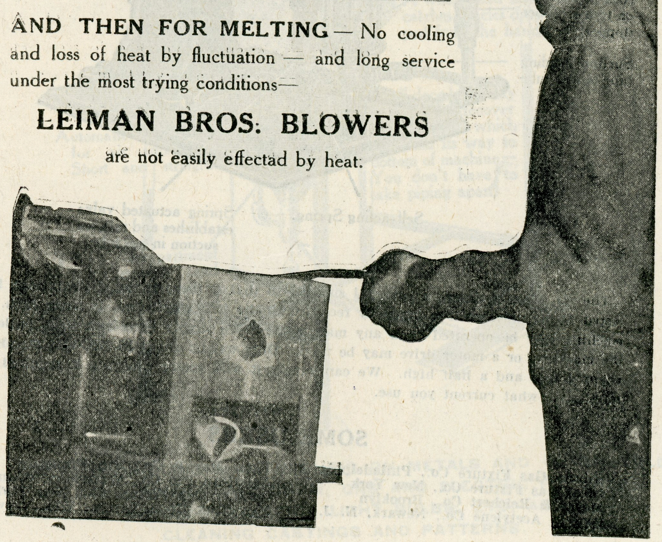
No puffing—a good, steady, even flame.



AND THEN FOR MELTING— No cooling and loss of heat by fluctuation — and long service under the most trying conditions—

LEIMAN BROS. BLOWERS

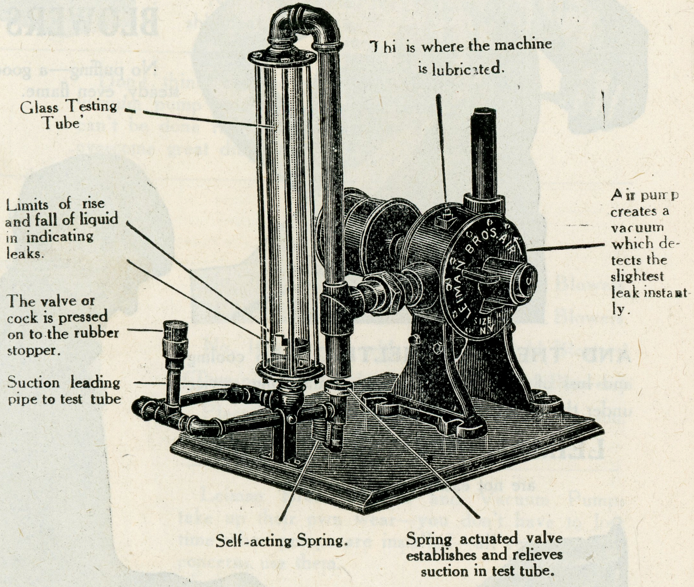
are not easily effectad by heat.



VALVE AND COCK TESTER

An Accurate and Rapid Means for Detecting Leaks in Any Fitting

This little machine should be in every shop where articles which should be gas tight are made. A simple pressure of the hand does the work, and as quickly as the operator cares to work. You can't fool the machine because it is practically automatic.


Glass Testing Tube
This is where the machine is lubricated.
Air pump creates a vacuum which detects the slightest leak instantly.
Limits of rise and fall of liquid in indicating leaks.
The valve or cock is pressed on to the rubber stopper.
Suction leading pipe to test tube
Self-acting Spring.
Spring actuated valve establishes and relieves suction in test tube.
LEIMAN BROS. AIR
SIZE N.Y.

The air pump produces a powerful suction, so that if there is the slightest leak in the tested fitting or valve it is instantly recorded in the indicator tube. It never fails. The machine may be operated from any main shaft. We supply loose and tight pulleys on the machine, or a motor drive may be used. Only weighs about 35 lbs. and stands only about a foot and a half high. We can supply it with motor complete if required. Always state what current you use.

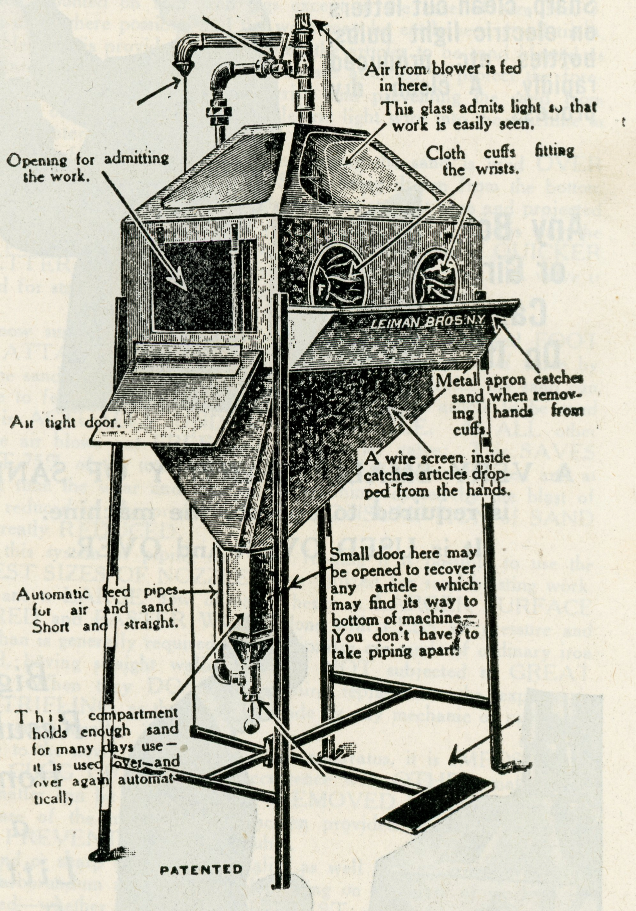
SOME USERS

Gibson Gas Fixture Co., Philadelphia
Ideal Gas Fixture Co., New York
Meyer & Reichert Co., Brooklyn
Oxweld Acetylene Co., Newark, N. J.
Thos. Day & Co., San Francisco
American Pin Co., Waterbury, Conn.
Century Gas Fixture Co., New York
New York Brass Turning Wks., New York

Supplied with or without Motor Drive

LEIMAN BROS. AUTOMATIC CONTINUOUS SAND SAND BLAST

Use Same Sand Over and Over Until Entirely Consumed


Air from blower is fed in here.
This glass admits light so that work is easily seen.
Opening for admitting the work.
Cloth cuffs fitting the wrists.
LEIMAN BROS. N.Y.
Metall apron catches sand when removing hands from cuffs.
Air tight door.
A wire screen inside catches articles dropped from the hands.
Small door here may be opened to recover any article which may find its way to bottom of machine. You don't have to take piping apart.
Automatic feed pipes for air and sand. Short and straight.
This compartment holds enough sand for many days use—it is used over and over again automatically
PATENTED

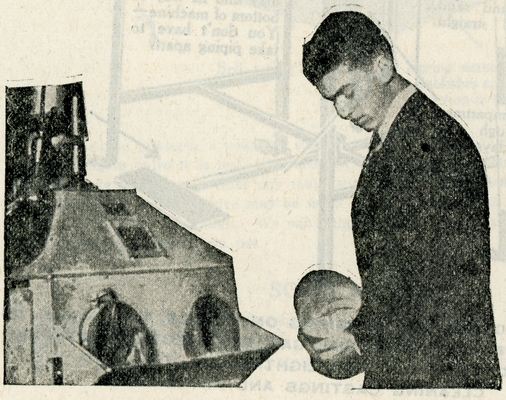
FOR FROSTING AND MAT FINISHING ON METALS AND GLASS, GOLD SILVER, BRASS, ALUMINUM, GAS AND ELECTRIC FIXTURES BOTTLES, ELECTRIC LIGHT BULBS, ETC. AND CLEANING CASTINGS AND PATTERNS.

SAND BLAST
FINISHES
ARE ALWAYS UNIFORM

Sharp, clean cut letters on electric light bulbs, bottles, etc., produced rapidly. A clean, dry process.

Any Boy or Girl Can Do It.

A VERY SMALL QUANTITY OF SAND is required to operate the machine. It is USED OVER and OVER.



Big Results from a Little Sand

CONTINUOUS FEED SAND BLAST

THE construction of LEIMAN BROS. CONTINUOUS FEED SAND BLAST is so simple that the most INEXPERIENCED can readily understand it. The body is made of heavy galvanized sheet iron mounted on four iron legs except in the case of size No. 3. Glass is used where possible, and the work may be easily seen at all times. A suitable door is provided for admitting the articles to be sand blasted as well as arm-holes to which cloth sleeves are attached to protect the forearms of the operator down to the wrists and preventing the sand from being blown out. Some users run an electric light wire into the machine to light up the interior.

By means of our patented system of piping the sand is used OVER AND OVER again CONTINUOUSLY, being drawn from the bottom of the machine by VACUUM through the short straight pipe and projected on to the work at the nozzle by the AIR PRESSURE. In this way the FULL pressure is utilized directly upon the work producing QUICKER and BETTER results than may be secured in any other way. A valve is provided for starting, stopping and regulating the flow of sand.

FOOT FEED ATTACHMENT

We now supply on all sizes but No. 3, our latest improved FOOT FEED ATTACHMENT. This is a foot-lever-actuated relief valve by which the sand feed is CONTROLLED. With this device the sand can be made to feed ONLY at the INSTANT when the article to be sand blasted is ACTUALLY UNDER THE NOZZLE. At ALL other times the air blows out FREE through the relief valve. This SAVES ABOUT 75% of the total amount OF POWER ordinarily used and at the same time the wear and tear on the machine, caused by the blast of sand, is reduced in like proportion. The CONSUMPTION of SAND is also greatly REDUCED.

With this system of piping and sand feeding it is possible to use the LARGEST SIZES OF NOZZLES ever utilized for sand blasting work. This means a LARGE flow of sand, hence a LARGER SURFACE COVERED and FASTER WORK done with LESS air pressure and volume than is generally required. These nozzles are made of ordinary iron pipe and, having straight walls, they are NOT subjected to GREAT WEAR. When they DO finally require replacement the expense is VERY TRIFLING, as they may be made by any mechanic or purchased for a few cents locally.

Owing to the novel construction of this apparatus, it is IMPOSSIBLE for it to CLOG UP, a common occurrence with OTHER makes, and foreign matter can be INSTANTLY REMOVED by opening the door at the base of the machine. The screen provided inside the machine, however, PREVENTS this latter trouble.

Sea sand or sharp sand of any quality as well as the various grades of flint or carborundum may be used, depending on the class of work to be sandblasted—whether the very ROUGHEST of steel or iron or the FINEST of finished brass, bronze, gold or silver.

ANY DEGREE of FINISH may be secured by simply using the corresponding grade of abrasive material. The change from one to the other grade of sand is the work of a few MOMENTS. Simply remove the sand in the machine through the opening provided at the bottom and replace it with the new supply by pouring the sand into the machine through the door.

The screen placed inside the machine is to prevent articles from falling to the bottom, but if by any chance, any article should find its way there, the pipes WILL NOT CLOG UP, as the door at the bottom of the sand receptacle may be opened up and the article recoverd. *THE PIPING NEED NOT BE DISCONNECTED.*

The work is held under the nozzle piece by piece. The operator's hands may be protected by the use of a pair of cloth gloves. The article after being sand blasted is laid aside inside the cabinet and the next piece sand blasted in turn. A supply may be placed in the machine and if placed under the nozzle will become PARTIALLY SAND BLASTED by the FLYING SAND and so the TIME required for doing the work is GREATLY LESSENED.

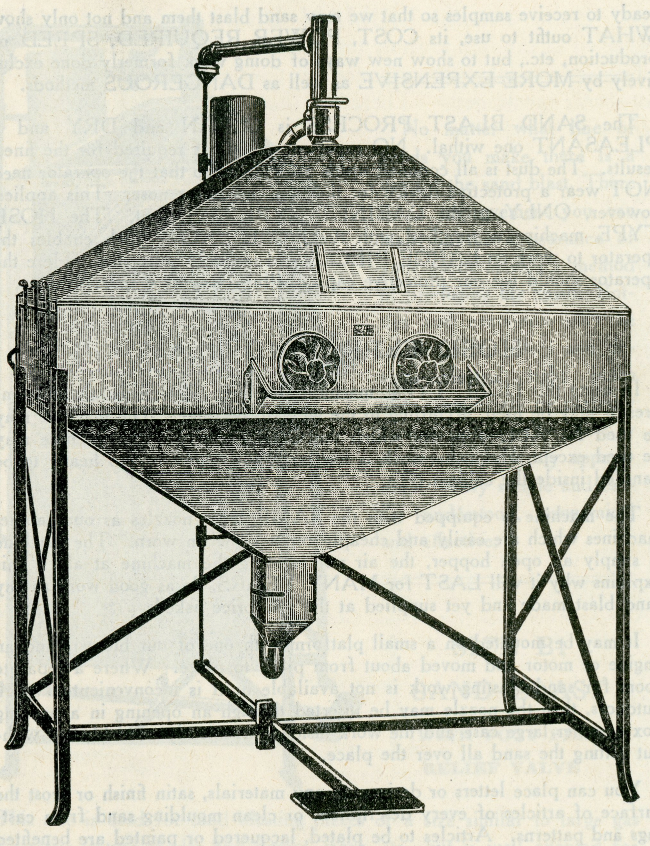
The rate of speed required to do sand blasting work depends of course upon the material of which the article is made and the kind of finish required. The PRESSURE OF AIR REQUIRED must be regulated in accordance with the class of work. Samples should be submitted or particulars sent to us to enable us to determine the proper outfit. It is IMPORTANT to know what kind of MATERIALS the articles are made of; the WEIGHT of the LARGEST PIECES as well as the dimensions of same and also the QUANTITY to be finished and the GRADE of FINISH desired or if simply to be CLEANED before plating, painting or lacquering.

Because an article is SMALL is NO good reason for selecting a SMALL MACHINE—if the article is SMALL and the QUANTITY of work SMALL, then the SMALLEST outfit might be used, but FIRST of all WHAT MATERIAL is it made of? If the article is SMALL but the QUANTITY LARGE, then even the VERY LARGEST MACHINE may be the BEST because of its GREATER SPEED of production.

In order to operate a sand blast AIR PRESSURE is necessary and the use of a PRESSURE BLOWER is therefore required. For sand blasting gold, silver, brass and other metals, as well as the majority of work on which a sandblast can be used, a PRESSURE of from ONE to FIVE POUNDS will be found ample. For a STEADY positive pressure we recommend the use of our positive high Pressure Blowers, a description of which will be found in the front of this PAMPHLET. Where a blower has already been installed it is necessary when ordering a sand blast to advise us as to the NAME, SIZE and SPEED of same, and the AMOUNT of air that can be spared to operate a sand blast. FAN BLOWERS are USELESS for sand blasting, for, while they deliver a large VOLUME of air, the PRESSURE is TOO LOW and the HIGH SPEED at which they run necessitates the use of CONSIDERABLE POWER. The RAPIDITY of sand blasting depends upon the VOLUME and AIR PRESSURE. The larger the VOLUME and the HIGHER the AIR PRESSURE, the GREATER the AMOUNT of WORK accomplished.

For SOME work a HIGHER PRESSURE than these blowers are capable of supplying is required, but in each case we are prepared to advise on this point.

The SAND BLAST can be used on a wide range of materials including steel, iron, brass, copper, gold, silver, and other precious metals, glass, ivory, rubber, fibre, celluloid, tortoise shell, wood, etc., and we are always



SIZE A1 SAND BLAST

WITH FOOT FEED RELIEF VALVE

For sand blasting pieces of large dimensions or small articles where the quantity is large and speed of production is required.

Size of Cabinet 24x60 inches
Size of door at each end 10½x20 inches
May be used with size G blower and oil separator for the fastest work.
"   "   "   "   F   "   "   "   reduced speed.
Weight of sand blast only 135 lbs.
Shipping weight 260 lbs. Weight foreign, 400 lbs.
Shipping measure cubic feet Blower weight and measure to be added.
Weights and measure are approximate and for comparison only.

ready to receive samples so that we may sand blast them and not only show WHAT outfit to use, its COST, POWER REQUIRED, SPEED of production, etc., but to show new ways of doing work formerly done exclusively by MORE EXPENSIVE as well as DANGEROUS methods.

The SAND BLAST PROCESS is CLEAN and DRY and a PLEASANT one withal. NO experienced help is required for the finest results. The dust is all confined inside the cabinet so that the operator need NOT wear a protective device for the eyes, mouth or nose. This applies, however, ONLY to the CABINET TYPE sand blast. The HOSE TYPE machine is supplied with the HOSE FEED which enables the operator to work on LARGE PIECES and in ANY direction. Here the operator should use our protective cap, an illustration of which we show.

HOSE TYPE SAND BLAST

In using this HOSE TYPE machine either our blowers or an air compressor may be used, according to the work to be done. The machine may be used for ALL work for which the CABINET TYPE machine may be used except where the work is too large and bulky or too heavy to be handled inside the cabinet type.

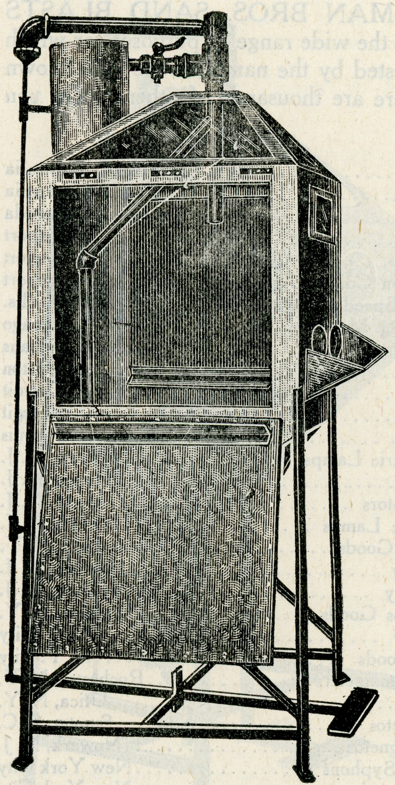
The machine is equipped with the SAME large nozzles as our cabinet machines which are easily and cheaply replaced when worn. The machine is simply an open hopper, the air not entering the machine at all. This explains why it will LAST for MANY YEARS, do as good work as any sand blast made and yet supplied at the low price asked.

It may be mounted on a small platform with one of our blowers and an engine or motor and moved about from place to place. Where a separate room for sand blasting work is not available or it is inconvenient to work outdoors, then the nozzle may be inserted through an opening in a packing box or other large case and the work inside conveniently sand blasted without getting the sand all over the place.

You can place letters or designs on any materials, satin finish or frost the surface of articles of every description, or clean moulding sand from castings and patterns. Articles to be plated, lacquered or painted are benefited by sand blasting as the coating is much more easily and evenly applied when this method is used.

Rust and corrosion may be removed, windows frosted, signs of glass or metal made, blackboard surfaces restored and in fact wherever these sand blasts are used new uses are constantly suggesting themselves.

And then the COST is NOT GREAT—ANY good tool costs money, but if it INCREASES PRODUCTION or DECREASES THE COST OF PRODUCTION its cost is INSIGNIFICANT. The most expensive outfit we supply costs a whole lot less than the price of an ordinary lathe and the possibility of profits from its use is far and away GREATER than is the case of machine tools found in every shop and which originally cost MANY TIMES the amount we ask for these.



No matter what line of goods you make there is a use for the sand blast. There is an improvement you can make in the appearance of your goods or in the method of producing the finish. Bottles and containers may be marked with letters and designs—electric light bulbs also—completely or partially frosted, a fine silky effect or a very rough, frosty appearance. Very simple and easily understood, economical and effective.

SIZE B1 SAND BLAST

WITH FOOT FEED RELIEF VALVE

This size is used for sand blasting pieces of a size similar to large gas and electric fixture shades and domes, trays, etc., but is well adapted for small pieces in quantities.

Size of cabinet, 30x36 inches. Size of door at each end 24x24 inches.

May be used with size G blower and oil separator for the fastest work.
" " " " " F " " " " reduced speed.

Weight of sand blast only, 150 lbs.

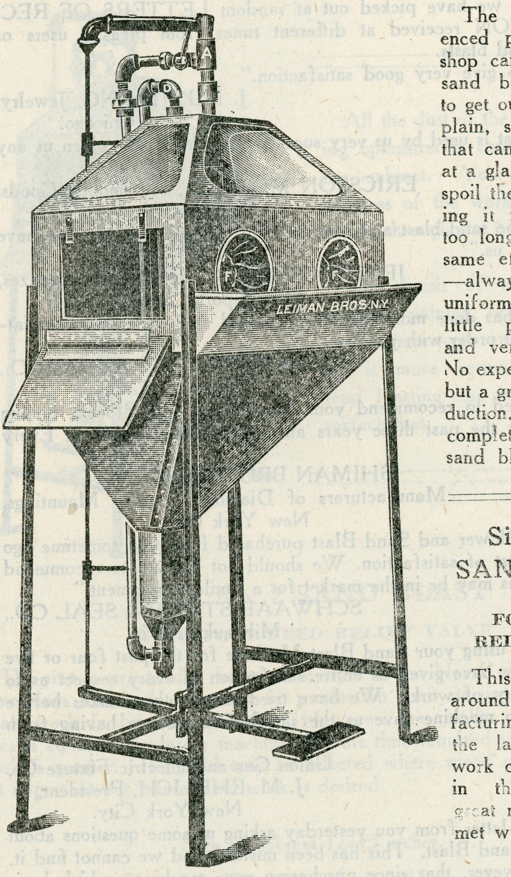
Shipping weight, 260 lbs. Foreign shipping weight, 400 lbs.

Shipping measure cubic feet. Blower weight and measure to be added

Weights and measures are approximate and for comparison only.

Some users of LEIMAN BROS. SAND BLASTS selected at random to show the wide range of purposes for which they are available as suggested by the names of the well known concerns mentioned.—There are thousands of others. *Do you recognize them?*

Angus & Coote, Ltd., Jewelry	Sidney, Australia
Waldes & Co., Jewelry	Prague, Bohemia
Wilt Twist Drill Co.	Walkerville, Canada
Artistic Bronze Co.	Bridgeport
Connecticut Web & Buckle Co.	Bridgeport
Remington Arms & Ammunition Co.	Bridgeport
Van Sicklen Co., Automobile Speed Meters	Aurora, Ills.
Cox Multi-Mailer Co., Mailing Machines	Chicago
Hausmann & Sons, Ltd., Jewelry	New Orleans
Standard Thermometer Co.	Boston
Cadillac Motor Car Co.	Detroit
Monarch Mfg. Co.	Detroit
Gutfreund-Arnold Jewelry Co.	St. Louis
Westinghouse Lamp Co., Electric Lamps	E. Orange, N. J.
Edison Phonograph Works	Orange, N. J.
Diehl Mfg. Co., Electric Motors	Elizabeth, N. J.
Edison Lamp Works, Electric Lamps	Harrison, N. J.
General Electric Co., Electric Goods	Schenectady, N. Y.
Carter, Howe & Co., Jewelry	Newark, N. J.
Ingersoll-Rand Co., Machinery	Phillipsburg, N. J.
A. Schrader's Sons, Inc., Brass Goods	Brooklyn, N. Y.
General Optical Co., Jewelry	N. Y. City
Sier-Bath Co., Automobile Goods	N. Y. City
Taylor Instruments Co., Thermometers	Rochester, N. Y.
Savage Arms Co.	Utica, N. Y.
Sumter Electrical Co., Magnetos	Sumter, S. C.
Splitdorf Electrical Co., Magnetos	Newark, N. J.
Koscherak Bros., Bottles and Syphons	New York City
Wm. Sheer, Manufacturing Jeweler	New York City
John Wanamaker, Department Store	New York City
Polachek & Bro. Co., Gas and Elec. Fixtures	Milwaukee, Wis.
A. H. DeBache & Co., Bottles and Syphons	Havana, Cuba
Univ. of Wisconsin, School of Mines and Metallurgy	Madison, Wis.
Los Angeles Gas & Elec. Fix. Co., Gas & Elec. Fixtures	Los Angeles, Cal.
Hart & Hegeman Mfg. Co., Electrical Goods	Hartford, Conn.
Scoville Mfg. Co., Brass Goods	Waterbury, Conn.
Thos. Day & Co., Gas and Electric Fixtures	San Francisco, Cal.
Wahle, Phillips Co., Gas and Electric Fixtures	New York City
New York & New Jersey Chandelier Co.	Jersey City, N. J.
Meyberg Company, Gas and Electric Fixtures	Los Angeles, Cal.
A. Lietz & Co., Scientific Instruments	San Francisco, Cal.
Ontario Lamp & Lantern Co.	Hamilton, Canada
Northern Electric & Mfg. Co.	Montreal, Canada
Western Electric Co., Electrical Goods	Chicago, Ill.
Victor Talking Machine Co.	Camden, N. J.



The most inexperienced person in your shop can operate these sand blasts — Nothing to get out of order, just plain, simple machines that can be understood at a glance. You can't spoil the work by leaving it in the machine too long. You get the same effect every day —always smooth and uniform. Only a very little power required and very little sand— No expense to speak of, but a great deal of production. No factory is complete without a sand blast.

Size No. 1
SAND BLAST
WITH FOOT FEED RELIEF VALVE

This is the best all around size for manufacturing work. While the largest pieces of work cannot be placed in the cabinet the great majority of work met with can.

Manufacturers of brass goods, small castings, bottles, electric light bulbs, etc., use this size extensively.

Size of cabinet 18x14 inches. Sizes of doors at each side 9½x14 inches.

May be used with size G blower and oil separator for the fastest work.
" " " " " F " " " " " reduced speed.
" " " " " E " " " " " "

Shipping weight, 165 lbs. Foreign shipping weight, 200 lbs.
Shipping measure 28 cubic feet. Blower weight and measure to be added.

Weights and measures are approximate and for comparison only.

From our files we have picked out at random LETTERS OF RECOMMENDATION received at different times from pleased users of Leiman Bros. sand blasts.

"We find it to give very good satisfaction."

J. MILHENING, Jewelry,
Chicago.

"This sand blast is used by us very successfully—has never given us any trouble."

ERICSSON MFG. CO., Automobile Goods,
Buffalo, N. Y.

"Please ship one sand blast and blower outfit duplicate of one you have already furnished us."

JENNINGS BROS. MFG. CO., Bronzes,
Bridgeport, Conn.

"The machine has done more than we expected and we are contemplating placing another order with you."

SILVER STATE PLATING CO.,
Denver, Colo.

"We are pleased to recommend your Sand Blast and Blower, having used the same for the past three years and find them Reliable in Every Respect."

SHIMAN BROTHERS & CO.,
Manufacturers of Diamond Jewelry Mountings,
New York City.

"The size 'D' Blower and Sand Blast purchased from you sometime ago is giving us the best of satisfaction. We should not hesitate to recommend this to such firms as may be in the market for a similar equipment."

SCHWAAB STAMP & SEAL CO.,
Milwaukee, Wis.

"We have been using your Sand Blast Machine for the past four or five years and find they have given us entire satisfaction in every respect as to quality and quantity of work. We have tried many other makes before using yours but no machine gave us the satisfaction we are having from yours."

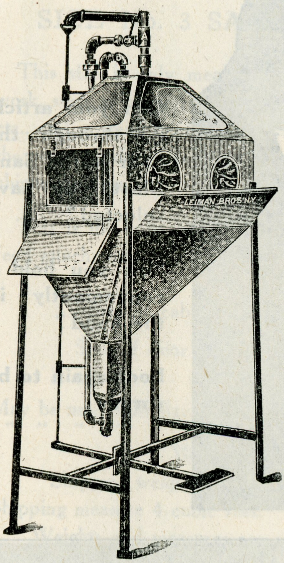
Union Gas and Electric Fixture Co.
J. M. EHRLICH, President,
New York City.

"We received a letter from you yesterday asking us some questions about your Blower and Sand Blast. This has been mislaid, and we cannot find it. We will state, however, that since purchasing your machines, which have been in constant use since July 5th, 1911, they have given perfect satisfaction."

RICHARDS MFG. CO.,
Manufacturers Lilliputian Jewelry
Attleboro, Mass.

"Relative to sand blast machine bought of you some two and a half years ago, beg to state that same is entirely satisfactory to us and is in operation daily in our works. We use this machine for sand blasting, also the general run of metal work used in our business."

EDWARD F. CALDWELL & CO.,
Gas and Electric Light Fixtures, Ornamental Brass and Wrought Iron Work,
New York



All the dust of the sand blasting operation is confined inside the cabinet. You watch the progress of the work under the nozzle through the front glass.

The finish of any article, whether painted or plated, is vastly improved and the finish is more permanent where sand blasting has prepared the surface first.

SIZE No. 2 SAND BLAST

WITH FOOT FEED RELIEF VALVE

The size is practically the same in style as the No. 1 size. The small dimensions and reduced speed of production limit its use to those doing small work in limited quantities. However, the quality of the work it does is equal to the larger machines but the time required to do a piece of work is greater. It should only be selected where speed of production is not important but where good work is desired.

Size of cabinet 12x15 inches.

Size of door on each side 4½x8½ inches.

May be used with size D blower and oil separator for the fastest work

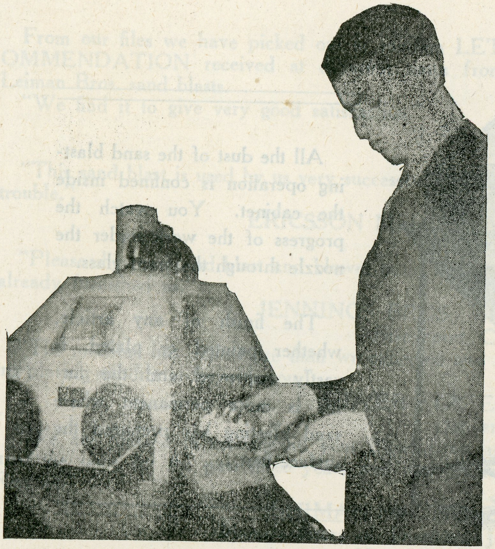
" " " " C " " " " " reduced speed.

Weight of Sand Blast only, 33 lbs.

Shipping weight, 75 lbs. Foreign shipping weight, 115 lbs.

Shipping measure, 13 cubic feet. Blower weight and measure to be added.

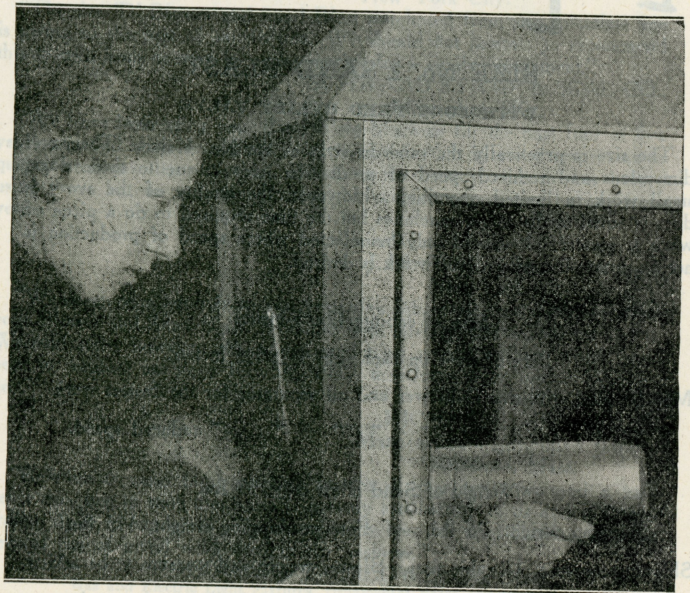
Weights and measures are approximate and for comparison only.



Can your article go through the door of the Sand Blast you have selected?

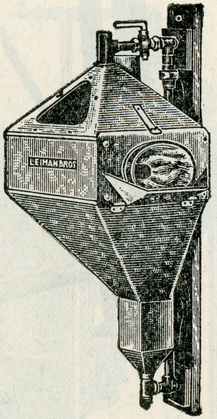
Can you hold it conveniently in the hand?

Look again to be sure.



Holding the work under rhe nozzle by hand,— It is quick and very satisfactory.

SIZE No. 3 SAND BLAST



This size is only meant for the very smallest work, such as finger rings, scarf pins, cuff buttons, etc., and in small quantities. While the quality of the work produced is the same as the larger machines the time required is much greater.

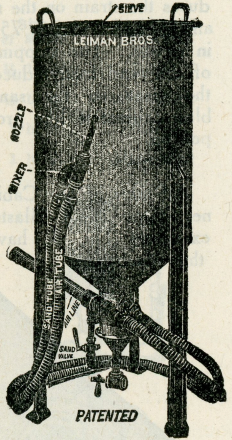
This is the only size supplied without the foot feed attachment.

Size of cabinet 10x12 inches.

Size of door at side 3x5 inches.

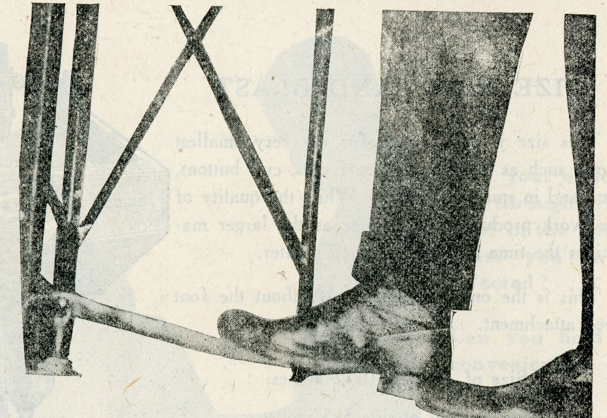
May be used with size C blower and oil separator for the fastest work.
“ “ “ “ “ B “ “ “ “ reduced speed.
Weight of sand blast only, 22 lbs.
Shipping weight, 60 lbs. Foreign shipping weight, 90 lbs.
Shipping measure 4 cubic feet. Blower weight and measure to be added.
Weights and measures are approximate and for comparison only.

HOSE SAND BLAST



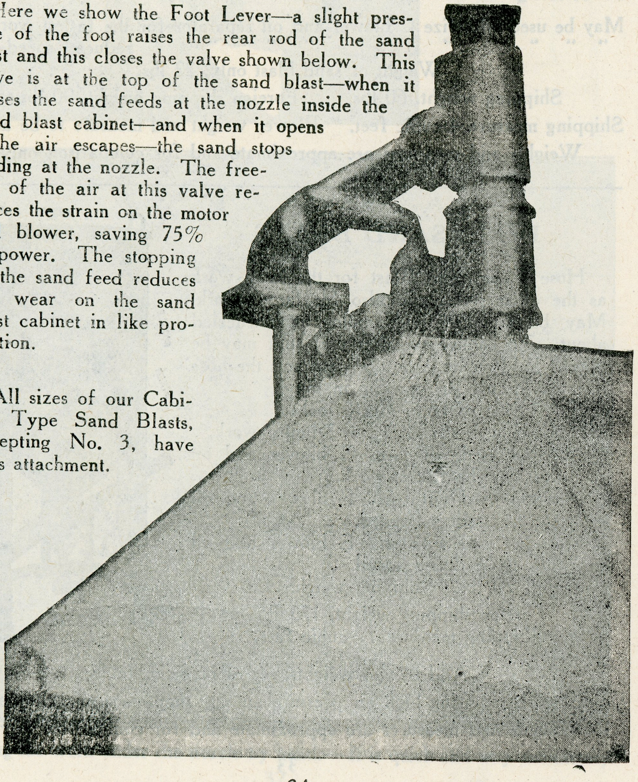
Hose Type Sand Blast for the same work as the other styles and also for larger work. May be mounted with motor and wheeled about. To confine the dust the work may be placed inside a large box or case and the hose inserted through an opening in same.
Size of tank, 30x36 inches.
Holds enough sand for 2 or 3 hours' work.
May be used with size G blower and oil separator for the fastest work.
May be used with size F blower and oil separator for reduced speed.
May be used with size E blower and oil seperator for reduced speed.
Weight, 70 lbs. Shipping weight, 126 lbs.
Foreign shipping weight, 175 lbs.
Shipping measure   cubic feet.

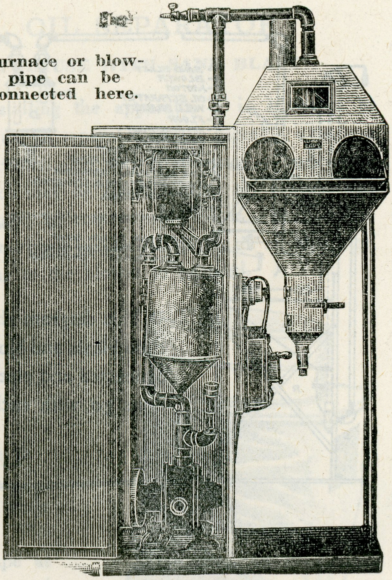
Add blower weights, see other pamphlet.
For work requiring high air pressure an air compressor must be used.
Weights and measures are approximate and for comparison only.



Here we show the Foot Lever—a slight pressure of the foot raises the rear rod of the sand blast and this closes the valve shown below. This valve is at the top of the sand blast—when it closes the sand feeds at the nozzle inside the sand blast cabinet—and when it opens—the air escapes—the sand stops feeding at the nozzle. The freeing of the air at this valve reduces the strain on the motor and blower, saving 75% in power. The stopping of the sand feed reduces the wear on the sand blast cabinet in like proportion.

All sizes of our Cabinet Type Sand Blasts, excepting No. 3, have this attachment.





Furnace or blowpipe can be connected here.

COMPLETE SAND BLAST OUTFIT

The Cabinet Sand Blast is the No. 2 size, the blower either size C or D, and the motor either ½ or 1 h. p. The blower and motor with oil separator is conveniently arranged in the cabinet alongside the sand blast. Shipped all complete, set up and ready to run. It is only necessary to attach electric wire.

COMBINATION OUTFITS

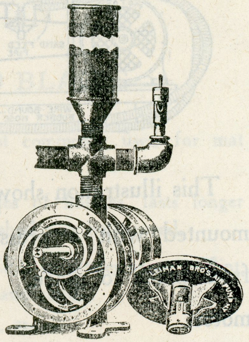
SIZE	Size of Sand Blast	Size of Blower	Size of Motor	ELECTRIC CURRENT
2 C	No. 2	Size C	½ h. p.	Direct
	No. 2	Size C	½ h. p.	Alternating
2 D	No. 2	Size D	1 h. p.	Direct
	No. 2	Size D	1 h. p.	Alternating

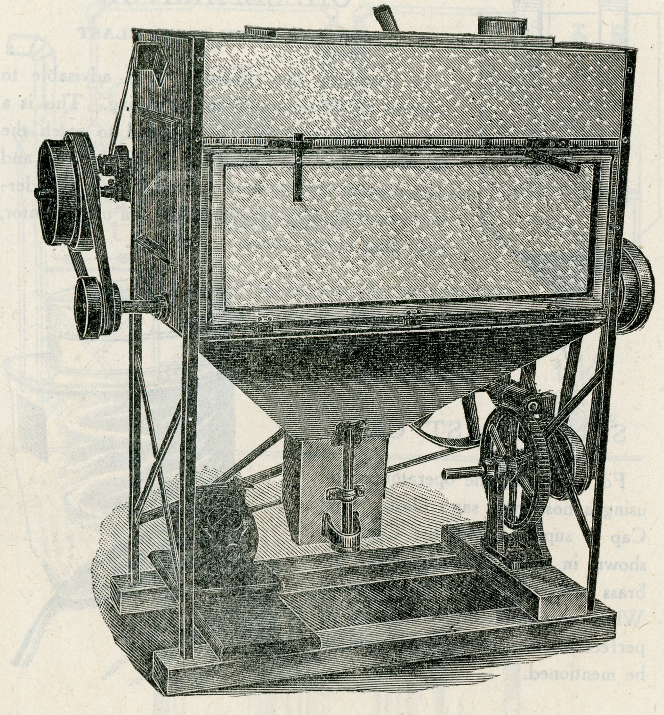
Either 110 or 220 volts furnished—alternating current either one or two phase, 60 cycles other current quoted on.

AIR SUPPLY for Sand Blasting

We supply Leiman Bros. positive pressure blowers for use in connection with these sand blasts—see special description of them—also their many uses in the factory and in factory processes.

SEE BLOWER SECTION OF THIS CATALOG





LEIMAN BROS. ROTARY SAND BLAST

For Sand Blasting or Graining Sheet Metal Automatically

The sheets may be attached to the revolving drum, which is operated by means of the electric motor supplied. The sand nozzle travels back and forth and thus in conjunction with the revolving of the cylinder makes it possible to reach every part of every sheet—and degree of fineness or coarseness of finish may be secured.

Supplied complete with necessary motor to drive the drum and nozzle, with blower and oil separator (but without motor to drive the blower).

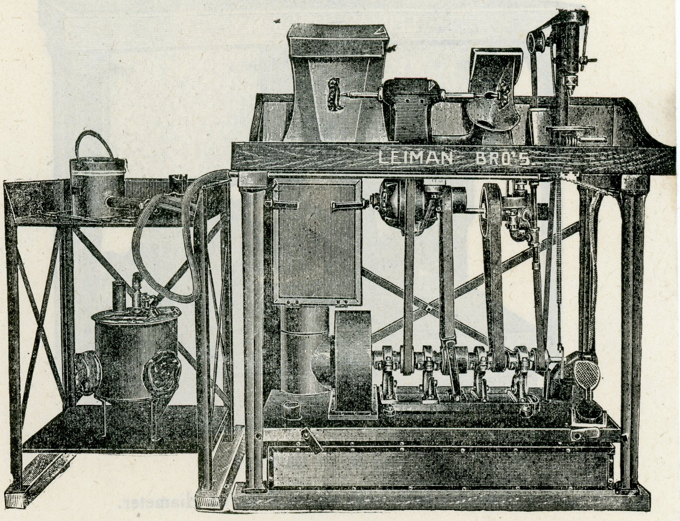
A COMPLETE
WORKSHOP OUTFIT

FOR THE JEWELER OR LIGHT METAL NOVELTY MAKER

with Polishing Dust Collector,

Drill, Melter, Solderer, Sand Blast, Etc.

ALL COMPLETE — READY TO RUN


LEIMAN BRO'S.

This complete workshop, as will be noted by referring to the illustration, i made up especially for the use of manufacturers, repairers and retailers. Eac operation such as drilling, melting, annealing, oxidizing, soldering, sand blasting polishing and dust collecting as well as a number of other operations can b performed with this outfit as rapidly and efficiently as the most expensive machine you ever saw.

Floor Space Complete about 22x72 inches with the separate iron table an furnace and sand blast. Weight for shipment, about 550 lbs.

LEIMAN BROS. 81 WALKER STREET **NEW YORK**
Near Broadway & Canal Street

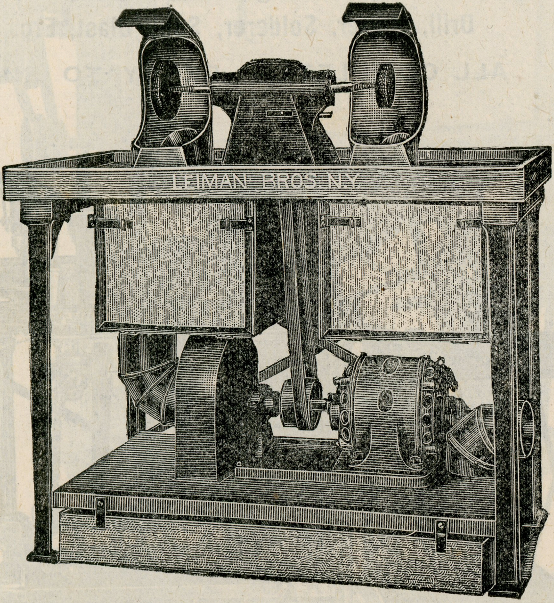
Over 30 Years in Business

For Jewelers, Silversmiths and Novelty Manufacturers

LEIMAN BROS.

POLISHING DUST COLLECTING OUTFIT

A powerful suction at each hood draws the dust into the tanks, keeps the shop clean, prevents the contraction of disease from breathing dust.


LEIMAN BROS. N.Y.

½ H. P. OUTFIT

For use with buffs up to 8 inches diameter.

Length of Spindle, regular each side of head including detachable taper points 5½ inches; on extended shaft model the left hand side extends 9 inches from the head with larger dust hood. Diameter of spindle ⅞ inch; height to centre of spindle, 8 inches; equipped with loose and tight pulleys. Floor space about 24x50 inches. Weight about 500 lbs.

SAVE THE GOLD LADEN POLISHING DUST

GET THE CATALOG

LEIMAN BROS. 81 WALKER STREET **NEW YORK**
Near Broadway & Canal Street

Over 30 Years in Business